1 POWERED HOSE REEL SAFETY ENCLOSURE

2 Cross Reference to Related Applications

- 3 This application is a continuation-in-part of
- 4 applicant's co-pending U.S. Application No. 29/154,133 filed
- 5 January 18, 2002, the contents of which are hereby
- 6 incorporated by reference. This application is also a
- 7 continuation in part of applicant's co-pending U.S.
- 8 Application No. 10/346,908 filed January 17, 2003, the
- 9 contents of which are hereby incorporated by reference.

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11 Field of the Invention

- 12 This invention is directed to a safety enclosure for
- 13 powered hose rewinding apparatus. More specifically, the
- 14 present invention relates to a protective safety enclosure
- 15 for electrically powered, motor driven hose reels.

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Background of the Invention

- 18 Elongated flexible members such as hoses or electrical
- 19 cords are a necessity for homeowners and industry alike.
- 20 Typically, these elongated flexible members are found either
- 21 wound and left on the ground near a fluid or electrical
- 22 supply, or wound on one of many known reel-type storage
- 23 devices.

- 1 The prior art has proposed a number of different
- 2 structures for rewinding and storing a flexible elongate
- 3 member when it is not in use. These devices generally
- 4 include stationary reel hangers that can be mounted to a
- 5 surface of a building or vehicle, as well as portable reel
- 6 carts that permit ready transport of the flexible elongate
- 7 member from one location to another.
- 8 For example, a typical surface mounted device or
- 9 stationary reel hanger includes a rotatable fitting that is
- 10 mounted to the building surface to which a manually rotated
- 11 reel is mounted. To retrieve the flexible elongate member
- 12 utilizing one of the stationary reel hangers requires
- 13 manually winding the flexible elongate member around the
- 14 structure or simply bundling the flexible elongate member
- 15 into loose coils and hanging the bundle over the structure.
- 16 Unfortunately, when hose is pulled out from such manually
- 17 wound devices, it often becomes snarled or tangled and
- 18 requires appreciable time and effort to correct the
- 19 situation.
- 20 Portable flexible elongate member reel carts permit
- 21 ready transport of the flexible elongate member from one
- 22 location to another. Portable flexible elongate member reel
- 23 carts typically include an open, manually rotatable reel or

- 1 spool positioned between a pair of side frames with wheels.
- 2 The flexible elongate member is manually wound upon the reel
- 3 for storage and pulled or dispensed from the reel for use.
- 4 Although such carts have become wide-spread in use
- 5 because of their portable storage capabilities, they do have
- 6 drawbacks. First, these devices require manual winding of
- 7 the hose. Rewinding a long flexible elongate member
- 8 requires a considerable effort. Due to the low positional
- 9 location of the winding mechanism on these devices, many
- 10 users may be physically unable to complete the rewinding.
- 11 Additionally, a flexible elongate member stored on such a
- 12 reel is exposed to the elements. Often flexible elongate
- 13 members are made of rubber or like materials that can become
- 14 stiff or brittle and can break when subjected to ultra-violet
- 15 radiation or low temperature extremes, particularly with
- 16 advanced age.
- 17 In an effort to solve some of these problems, a number
- 18 of flexible elongate member retrieval devices have been
- 19 developed which automatically retrieve and rewind flexible
- 20 elongate members on a reel in such a manner so as to avoid
- 21 tangling the next time the flexible elongate member is
- 22 deployed or paid out. Such devices generally include a
- 23 powered reel to retrieve the flexible elongate member and a

- 1 level wind mechanism for guiding the flexible elongate member
- 2 onto the reel. The reel is generally driven by the
- 3 combination of an electric motor and a speed reducer such as
- 4 a gearbox or a chain and sprocket assembly. Power for the
- 5 electric motor is generally provided by either household
- 6 current or a battery. A simple electrical switch is
- 7 activated to allow current to flow from the power supply to
- 8 the electrical motor to rotate the powered reel. The level
- 9 wind mechanism is typically also driven, via a drive train,
- 10 by the same electric motor and includes a traversing screw, a
- 11 guide rod, and a follower.
- 12 Unfortunately, many of these motorized devices lack a
- 13 suitably safe enclosure to protect the operator and/or small
- 14 children from being accidentally caught in the device or its
- 15 drive train. The motors and drive train mechanisms utilized
- 16 on these devices often have numerous pinch points and are
- 17 capable of causing serious injury to an operator that
- 18 inadvertently gets tangled in the device. In addition, the
- 19 electric motors utilized in most of the prior art devices
- 20 have voltage requirements that may cause an electrical shock
- 21 in the absence of adequate guarding.
- 22 Moreover, none of the motorized hose reels known, are
- 23 equipped with safety interlocks to prevent the electric motor

- 1 from being engaged if an enclosure cover is opened. To
- 2 compound the problem, many of these devices do not provide
- 3 any means to immediately stop the retrieval of the flexible
- 4 elongate member in the event of an emergency, requiring the
- 5 entire flexible elongate member to be retracted before the
- 6 device can be stopped. Retracting the entire flexible
- 7 elongate member may take several seconds and exacerbates
- 8 emergency situations such as when a person or pet has been
- 9 caught in the device or the flexible elongate member as it is
- 10 retracted.
- 11 Even further, none of the devices known provide a
- 12 disengaging level-wind mechanism. The level-winds of the
- 13 prior art are capable of causing severe damage to an
- 14 operator, child or pet that may accidentally obstruct the
- 15 path of the level-wind mechanisms as they traverse back and
- 16 forth across the reel.
- 17 Accordingly, there exists a need for a motorized reel
- 18 storage enclosure that permits safe motorized take-up of a
- 19 flexible elongate member. The enclosure should cause the
- 20 device to stop immediately when the enclosure is opened or
- 21 tipped over. In addition, the level-wind utilized in the
- 22 enclosure should disengage in the event that its path becomes
- 23 blocked. Moreover, the enclosure should provide a means for

- 1 an operator to quickly stop the retrieval of the flexible
- 2 elongate member in an emergency situation. Such an enclosure
- 3 should be capable of safely retracting and "hiding-away" the
- 4 flexible elongate member stored therein when not in use, and
- 5 provide a protective, outward aesthetically pleasing
- 6 appearance.

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DESCRIPTION OF THE PRIOR ART

- 2 A number of motorized reel assemblies utilizing electric
- 3 motors to drive a reel for retracting an elongate member such
- 4 as a cord or hose have been disclosed. Examples are
- 5 disclosed as follows:
- U.S. Patent No. 4,832,074 discloses an automatic hose
- 7 rewinding device having an alternating current (AC) motor
- 8 driven reel. The desired amount of hose is pulled out of the
- 9 enclosure manually for use. After use, the operator pushes a
- 10 button and the hose is completely retracted until a device on
- 11 the end of the hose strikes a bar to disengage the AC motor.
- 12 The construction of the device requires the entire amount of
- 13 hose pulled from the device to be retracted and does not
- 14 teach or disclose any means of stopping the retraction in the
- 15 event of an emergency. Additionally, the patent does not
- 16 teach or disclose any type of interlock device that would
- 17 prevent operation of the motor in the event that a cover is
- 18 opened.
- 19 U.S. Patent No. 4,513,772 discloses an automatic hose
- 20 winding apparatus having an intermeshing, non-slipping
- 21 clutch. The desired amount of hose is pulled out of the
- 22 device manually for use. For retraction, the operator must
- 23 manually lock the intermeshing clutch mechanism in place.

- 1 When the hose is completely retracted, a device on the end of
- 2 the hose strikes a lever to disengage the intermeshing
- 3 clutch. The patent does not teach or suggest any type of a
- 4 protective enclosure or a level-wind.
- U.S. Patent No. 5,495,995 discloses a motor driven hose
- 6 reel assembly. The device interconnects two sensors and a
- 7 motor to monitor the quantity of hose manually pulled from
- 8 the reel. By pulling on the hose manually, the hose is
- 9 rewound in an amount less than that necessary to completely
- $10\,$ rewind the hose. Because the device is operated in a
- 11 retraction direction when the hose is pulled, the design
- 12 requires the operator to overcome the pulling force of the
- 13 device to extend hose from the machine. The patent does not
- 14 teach or suggest any type of a protective enclosure over the
- 15 reel portion of the device. In addition, the patent does not
- 16 teach or suggest any interlocks or disconnects which would
- 17 allow the device rewind cycle to be interrupted in an
- 18 emergency situation.
- U.S. Patent No. 4,012,002 discloses a coupling mechanism
- 20 for use in conjunction with a hose reel to automatically and
- 21 selectively engage or disengage a reel and motorized drive
- 22 train. The coupling utilizes a sliding spring pin on the
- 23 reel which is designed to automatically engage one of a

- l series of cooperating stop lugs on the drive train to
- 2 transmit the driving power of the motor to the rotatable
- 3 reel. The spring pin can be manually locked in a disengaged
- 4 position to allow the hose reel to freewheel. When the
- 5 spring pin is engaged the device operates in direct drive
- 6 from the motor. The device utilizes chains and sprockets
- 7 within the drive train for which there is not any teaching or
- 8 suggestion of any type of a protective enclosure or a level-
- 9 wind.
- U.S. Patent No. 6,149,096 discloses a retractable reel
- 11 device especially useful for electrical cables. The device
- 12 is specifically designed to allow an operator to pull out a
- 13 desired amount of cable. Once the cable is paid out, the
- 14 device maintains a predetermined amount of tension on the
- 15 cable. Thereafter, any slack in the cable is automatically
- 16 retracted by an AC motor. The patent does not teach or
- 17 suggest any type of a protective enclosure over the reel
- 18 portion of the device. In addition, the patent does not
- 19 teach or suggest any interlocks or disconnects which would
- 20 allow the device rewind cycle to be interrupted in an
- 21 emergency situation.
- The prior art devices fail to teach or suggest the use
- 23 of an enclosure with safety interlocks that prevent the motor

- 1 from being engaged when a cover is in an open position. The
- 2 devices are further deficient in teaching a safety hose guide
- 3 assembly that is capable of disengagement in the event that
- 4 the path of the device is inadvertently blocked. The prior
- 5 art devices are still yet deficient in teaching an enclosure
- 6 with safety interlocks that prevent or stop operation of the
- 7 motorized reel when the device has been overturned.

1 Summary of the Invention

- 2 The instant invention relates to a safety enclosure for
- 3 use with an associated powered flexible elongate member
- 4 rewinding reel. The enclosure has left and right side wall
- 5 panels, front and rear wall panels extending between the left
- 6 and right wall panels, a cover, and at least one safety
- 7 interlock. The enclosure is configured for receiving a
- 8 motorized rotatable reel for storing a length of flexible
- 9 elongate member within the enclosure. The rotatable reel
- 10 includes a hub and a pair of flanges at opposing ends of the
- 11 hub, and is configured for storage, motorized take-up, and
- 12 pay-out of the flexible elongate member. The safety
- 13 interlock(s) are incorporated into the enclosure and prevent
- 14 motorized operation of the reel when the enclosure is opened
- 15 or tipped over.
- 16 The cover pivots about a pair of hinges that mount the
- 17 cover to the enclosure for movement between a closed position
- 18 and an open position. In a preferred embodiment each hinge
- 19 includes a pocket formed in a respective side wall panel and
- 20 a pin associated and cooperative with each pocket. The cover
- 21 can be formed having a depending lip, and the pins can extend
- 22 from the lip. Preferably, the pins are formed as cylindrical

- 1 elements extending from the lip, axially aligned to one
- 2 another to facilitate rotational movement.
- 3 When the cover is rotated into the open position and the
- 4 interior of the enclosure is accessible, a safety interlock
- 5 switch assembly prevents motorized operation of the reel.
- 6 When the cover is rotated into the closed position, the cover
- 7 cooperates with the safety interlock switch to allow
- 8 motorized operation of the reel and the interior of the
- 9 enclosure is covered.
- 10 To facilitate take-up and pay-out of the flexible
- 11 elongate member with the cover closed, the front wall panel
- 12 includes a cut-out portion extending downward from the top
- 13 edge thereof adjacent to the junction with the cover. In
- 14 this arrangement, when the cover is closed, the cut-out
- 15 accommodates traversing a portion of the flexible elongate
- 16 member therethrough.
- 17 In one embodiment a reciprocating level-wind assembly is
- 18 linked to the hose reel. When the hose reel is rotated, the
- 19 reciprocating level-wind will move back and forth across the
- 20 reel to uniformly and smoothly wrap the flexible elongate
- 21 member on the motorized reel to provide a compact storage
- 22 configuration. The reciprocating level-wind is constructed
- 23 and arranged to be released from its double-helix lead-screw

- 1 in the event that its path becomes blocked, such as by debris
- 2 or when a hand or arm is mistakenly placed in the opening
- 3 during operation. Alternatively, the level-wind may be
- 4 manually disengaged to facilitate easy pay-out of the
- 5 flexible elongate member and can thereafter be repositioned
- 6 before being manually re-engaged to the double-helix lead-
- 7 screw.
- 8 Therefore, it is an objective of the present invention
- 9 to provide a motorized reel safety enclosure wherein the
- 10 motorized portion of the device is prevented from operation
- 11 when a portion of the enclosure is opened.
- 12 It is another objective of the present invention to
- 13 provide a motorized reel safety enclosure wherein the
- 14 motorized portion of the device is prevented from operation
- 15 when the enclosure has been inadvertently overturned or
- 16 tilted beyond a predetermined range.
- 17 It is a further objective of the present invention to
- 18 provide a motorized reel safety enclosure that includes
- 19 safety interlocks to prevent motorized operation when the
- 20 enclosure is opened.
- 21 It is still a further objective of the present invention
- 22 to provide a motorized reel safety enclosure that includes a

- 1 manually disengageable and manually engageable level-wind
- 2 mechanism.
- 3 Yet another objective of the present invention is to
- 4 provide a motorized reel safety enclosure that includes a
- 5 level-wind assembly that automatically disengages in the
- 6 event that its path becomes blocked.
- 7 Still yet another objective of the present invention is
- 8 to provide a motorized reel safety enclosure that is
- 9 aesthetically appealing to consumers.
- 10 Other objectives and advantages of this invention will
- 11 become apparent from the following description taken in
- 12 conjunction with the accompanying drawings wherein are set
- 13 forth, by way of illustration and example, certain
- 14 embodiments of this invention. The drawings constitute a
- 15 part of this specification and include exemplary embodiments
- 16 of the present invention and illustrate various objects and
- 17 features thereof.

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Brief Description of the Drawings

- 2 FIG. 1 is a perspective view of the safety enclosure for
- 3 a powered reel device of the instant invention;
- 4 FIG. 2 is an exploded perspective view of the safety
- 5 enclosure for a powered reel device;
- 6 FIG. 3 is a perspective view illustrating the safety
- 7 enclosure for a powered reel device with the cover in an open
- 8 position;
- 9 FIG. 4 is a perspective view illustrating the safety
- 10 enclosure for a powered reel device with the cover in an open
- 11 position;
- 12 FIG. 5 is a partial section view with a portion thereof
- 13 being broken away, illustrating the top cover cooperating
- 14 with a safety interlock switch means;
- 15 FIG. 6 is a perspective view having the reel and the
- 16 level-wind omitted for clarity, illustrating the cover latch
- 17 arrangement
- 18 FIG. 6A is a partial section view, illustrating the
- 19 cover latch arrangement;
- FIG. 7 is a partial rear view illustrating the recessed .
- 21 anchoring apertures;

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1 Detailed Description of the Preferred Embodiment

- 2 It is to be understood that while a certain form of the
- 3 invention is illustrated, it is not to be limited to the
- 4 specific form or arrangement of parts herein described and
- 5 shown. It will be apparent to those skilled in the art that
- 6 various changes may be made without departing from the scope
- 7 of the invention and the invention is not to be considered
- 8 limited to what is shown in the drawings and described in the
- 9 specification.
- 10 Referring now to FIG. 1, generally, there is shown a
- 11 safety enclosure 100 in accordance with the principles of the
- 12 present invention. The safety enclosure 100 is generally
- 13 constructed and arranged to enclose a motor driven reel or
- 14 spool 12 onto which a flexible elongate member is
- 15 mechanically wound or taken up, and from which the flexible
- 16 elongate member is fed out or paid out.
- 17 The enclosure 100 includes front wall panel 30 and rear
- 18 wall panel 34, left side wall panel 32, right side wall panel
- 19 36, and a pivoting top or cover 38. Optionally, the
- 20 enclosure 100 can include a bottom panel (not shown) for
- 21 substantially fully enclosing and preventing unwanted access
- 22 to the powered reel 12 during operation. The optional bottom
- 23 panel is preferably constructed as a reversible member with a

- 1 enhanced friction engaging first surface and a relatively
- 2 smooth second surface. In this manner the bottom panel could
- 3 be inserted to prevent the apparatus from skidding on hard
- 4 surfaces where staking is not practical. In addition, the
- 5 bottom surfaces of the left side wall panel 32 and right side
- 6 wall panel 36 may be constructed with optional rubber pads 33
- 7 to further engage hard surfaces. As will be apparent from
- 8 the drawings, the front, rear and side panels 30-36, and the
- 9 cover 38 enclose the reel 12 such that the motorized reel is
- 10 substantially not accessible from outside of the enclosure 14
- 11 when the cover 38 is closed. Those skilled in the art will
- 12 recognize that this arrangement covers pinch points
- 13 associated with the motorized reel and the drive train
- 14 required to motorize the reel.
- In a typical arrangement, the reel 12 is supported by
- 16 and rotatably mounted within the enclosure 100. The reel 12
- 17 generally includes a central hub and a pair of radially
- 18 extending flanges that are configured to accommodate a length
- 19 of the flexible elongate member wrapped around the hub
- 20 between the flanges. To prevent torquing and/or twisting of
- 21 internal components, the left side panel 32 is constructed
- 22 and arranged for a sliding seal arrangement 20 (FIG. 4)
- 23 mounted to the enclosure 100 at about the axis of rotation of

- 1 the reel 12. Those skilled in the art will recognize that
- 2 this arrangement permits the flexible elongate member to
- 3 remain in fluid communication with a fluid supply while the
- 4 motorized reel is rotated to rewind the flexible elongate
- 5 member.
- In a first embodiment, the front panel 30 of enclosure
- 7 100 includes a cut-out portion 52 extending downwardly from
- 8 the top lip thereof. The cut-out portion 52 can be elongated
- 9 and is suitably sized to accommodate a flexible elongate
- 10 member so that the flexible elongate member can be paid-out
- 11 from or taken-up onto the spool 12 without lifting the cover
- 12 38. That is, the flexible elongate member can freely move
- 13 through the cut-out opening 52 without opening the cover 38.
- In a most preferred embodiment, the front panel 30 of
- 15 enclosure 100 includes an elongated cut-out portion 52
- 16 extending downwardly from a top lip thereof. The cut-out
- 17 portion 52 is sized to accommodate a reciprocating level-wind
- 18 assembly 50 so that the flexible elongate member can be
- 19 uniformly and smoothly wrapped on the reel 12 to provide a
- 20 compact storage configuration or easily paid-out from the
- 21 spool 12 without lifting the cover 38.
- 22 The enclosure 100 may also include a drawer 44 extending
- 23 between the right and left side panels 36, 32, parallel to

- 1 the front panel 30. The drawer 44 is illustrated as opening
- 2 in a pivotal fashion but may also be configured to slide open
- 3 for accommodating storage of hose attachments and the like.
- 4 The drawer 44 (FIG.3) is constructed having sides 45 and a
- 5 rear wall 43 to prevent an operator from inadvertently
- 6 reaching into the enclosure during operation of the reel 12.
- 7 The enclosure 100 may include a foot pedal housing 40
- 8 extending inwardly into the right side panel 36 for housing a
- 9 foot pedal 42. The foot pedal 42 may be utilized for
- 10 operation of the motorized reel 12. The foot pedal housing
- 11 40 is used to protect the foot pedal from inadvertent
- 12 operation. The foot pedal housing 40 can be provided in a
- 13 variety of configurations suitable for protecting the pedal
- 14 42 from inadvertent operation, such configurations will be
- 15 recognized by those skilled in the art. Alternatively, those
- 16 skilled in the art will recognize the enclosure may include
- 17 buttons or switches mounted to the enclosure and positioned
- 18 to prevent inadvertent access to the motorized reel or its
- 19 associated drive train during operation, e.g. palm buttons
- 20 and the like. Because the enclosure prevents operation when
- 21 a cover is opened, remote transmitters and receivers well
- 22 known in the art may also be used to cause motorized
- 23 operation of the reel.

- 1 Referring to FIG. 2, an exploded view of the enclosure
- 2 is shown. The panels 30-38 are preferably molded components
- 3 formed from high strength polymeric (plastic) material, such
- 4 as polystyrene and the like. The panels 30-38 are most
- 5 preferably configured such that the front and rear panels 30,
- 6 34 have contoured projecting posts 70 that insert into
- 7 recesses or sockets 72 that extend vertically along each side
- 8 of the side wall panels 32, 36. The contoured posts 70
- 9 include ramped surfaces or snap-type elements 76 that engage
- 10 openings (not shown) to lock the panels to one another.
- 11 Advantageously, this configuration permits ready assembly of
- 12 the enclosure 100 with a minimum number of tools, and
- 13 involves a minimum number of parts. Alternatively, the
- 14 enclosure panels could be constructed and arranged to be
- 15 secured together with other suitable means of fastening well
- 16 known in the art, e.g. screws, bolts, adhesive and the like.
- 17 The cover or top panel 38 is fitted to the panels 30-36
- 18 using a hinge arrangement indicated generally at 80 (FIG. 4)
- 19 and latch arrangement generally at 82, best seen in FIGS. 6
- 20 and 6A. The hinge arrangement 80 permits pivoting or
- 21 rotating the cover 38 between the closed position shown in
- 22 FIG. 1 and the open position shown in FIGS. 3 and 4. The
- 23 cover 38 is configured so that when opened and maintained in

- 1 the open position use of the motorized reel is locked out via
- 2 the lockout means (FIGS. 4 and 5).
- 3 The preferred hinge arrangement 80 includes a pocket 85
- 4 (FIG.2) formed in each of the side panels 32, 36 at about the
- 5 upper rear corners as indicated at (FIG. 4). A pair of
- 6 outwardly extending pivot pins 86 (FIG. 2), extend from each
- 7 side of the rear corners of the cover 38. In a present
- 8 embodiment, the cover 38 has a depending lip 88, from which
- 9 the pivot pins 86 extend. Each of the pivot pins 86 is
- 10 configured to engage a respective pocket. The pins 86 are
- 11 configured to cooperate with their respective pocket to
- 12 permit pivoting or rotating the cover 38.
- Now referring to FIGS. 4 and 5, the motorized hose
- 14 rewinding apparatus 100 is illustrated with the cover 38 and
- 15 drawer 44, in their respective open positions. Incorporated
- 16 into the enclosure cover 38 is at least one lockout means
- 17 that prevents the motorized reel from operating when the
- 18 cover 38 is in the open position. The lockout means is
- 19 illustrated as, but not limited to, an engagement pin 64
- 20 cooperating with a normally open micro-switch 68 (FIG. 4).
- 21 Other devices well known in the art suitable for sensing an
- 22 open cover panel and locking out electrical devices may be
- 23 substituted for the pin and switch assembly illustrated

- 1 herein. Such devices may include but should not be limited
- 2 to micro-switches, proximity switches, mercury switches,
- 3 mechanical switches, optical switches and the like.
- 4 Also visible is the reciprocating level-wind assembly
- 5 50. The reciprocating level-wind assembly contains a double
- 6 helix lead-screw 54, guide rod 56, and carriage 58. The
- 7 reciprocating level-wind assembly 50 is linked via a gear-
- 8 train (not shown) to the reel 12 so that when the hose reel
- 9 12 is rotated, the double helix lead-screw 54 rotates at a
- $10\,$ desired ratio with respect to the reel 12. The lead-screw is
- 11 journaled for rotation between side members 32 and 36 and is
- 12 substantially parallel to the central hub portion of reel 12.
- 13 The lead-screw 54 engages the carriage 58 via follower 66,
- 14 allowing the carriage 58 to move back and forth across the
- 15 lead-screw 54 and the guide rod 56 when engaged during
- 16 motorized operation. The follower 66 can be manually
- 17 disengaged from the lead-screw 54 to permit easy pay-out of
- 18 the flexible elongate member or repositioning of the carriage
- 19 58. Operation of the level-wind assembly 50 permits the
- 20 flexible elongate member to be uniformly and smoothly wrapped
- 21 on the reel 12 to provide a compact storage configuration.
- 22 The follower 66 may also include a disengagement feature that
- 23 permits the carriage 58 to release from the lead-screw 54 in

- 1 the event that the carriage 58 is obstructed during motorized
- 2 rewinding of the flexible elongate member.
- 3 The enclosure 100 may also be constructed and arranged
- 4 with an anti-tipping means (not shown) to prevent operation
- 5 of the powered reel when the enclosure has been overturned
- 6 or tipped beyond a predetermined limit. In a preferred
- 7 embodiment the anti-tipping means utilizes at least one
- 8 mercury switch secured within the enclosure. However, other
- 9 devices well known in the art suitable for sensing a tipped
- 10 or overturned enclosure and locking out electrical devices
- 11 may be substituted for the mercury switch of the preferred
- 12 embodiment. Such devices may include but should not be
- 13 limited to micro-switches, proximity switches, mechanical
- 14 switches, optical switches and the like.
- 15 As illustrated in FIGS. 6 and 6A, the releasable latch
- 16 arrangement 82 is engagingly oriented when the cover 38 is in
- 17 the closed position. The latch arrangement releasably
- 18 secures the cover to the side, front, and rear panels to help
- 19 prevent children from opening the enclosure. The releasable
- 20 latching means is illustrated by, but should not be limited
- 21 to, a catch and detent arrangement. Other latching devices
- 22 well known in the art, capable of releaseably holding the
- 23 cover of the enclosure in a closed position, may be utilized.

- 1 In the closed position, the catches 90 extending from the
- 2 depending cover lip 88 are engaged with the respective side
- 3 panels 32 and 36. To open the cover 38, it is necessary to
- 4 pivot the cover 38 upward which releaseably urges the catches
- 5 90 upward past the detents 92.
- 6 Referring to FIG. 7, the lower portion of rear panel 34
- 7 of enclosure 100 is shown. The rear panel contains at least
- 8 one and preferably two recessed anchoring apertures 128. The
- 9 recessed apertures allow the enclosure to be securely
- 10 attached to a desired surface with an attachment means such
- 11 as lag bolts, spikes or metal stakes, to prevent unwanted
- 12 movement overturning or tipping of the apparatus during
- 13 motorized rewinding or pay-out of flexible elongate member.
- 14 It should be appreciated that recessing the anchoring
- 15 apertures 128 increases safety by eliminating objects
- 16 extending outwardly from the enclosure.
- 17 All patents and publications mentioned in this
- 18 specification are indicative of the levels of those skilled
- 19 in the art to which the invention pertains. All patents and
- 20 publications are herein incorporated by reference to the same
- 21 extent as if each individual publication was specifically and
- 22 individually indicated to be incorporated by reference.

- 1 It is to be understood that while a certain form of the
- 2 invention is illustrated, it is not to be limited to the
- 3 specific form or arrangement herein described and shown. It
- 4 will be apparent to those skilled in the art that various
- 5 changes may be made without departing from the scope of the
- 6 invention and the invention is not to be considered limited
- 7 to what is shown and described in the specification.
- 8 One skilled in the art will readily appreciate that the
- 9 present invention is well adapted to carry out the objectives
- 10 and obtain the ends and advantages mentioned, as well as
- 11 those inherent therein. The embodiments, methods, procedures
- 12 and techniques described herein are presently representative
- 13 of the preferred embodiments, are intended to be exemplary
- 14 and are not intended as limitations on the scope. Changes
- 15 therein and other uses will occur to those skilled in the art
- 16 which are encompassed within the spirit of the invention and
- 17 are defined by the scope of the appended claims. Although
- 18 the invention has been described in connection with specific
- 19 preferred embodiments, it should be understood that the
- 20 invention as claimed should not be unduly limited to such
- 21 specific embodiments. Indeed, various modifications of the
- 22 described modes for carrying out the invention which are

- 1 obvious to those skilled in the art are intended to be within
- 2 the scope of the following claims.